

disabled by sickness to come over to me (which he promis'd to do, as soon as he could) writ me only a *Ticket*, whose substance was, That the *Earth-quake* was there much more considerable, than where I lodged, and that at a Gentlemans house, whom he names (the most noted Person, it seems, of the neighbourhood) the House trembled very much, so as to make the Stones manifestly to move to and fro in the Parlour, to the great amazement and fright of all the Family. The Hill, whereon this *Brill* stands, I have observ'd to be very well stor'd with Mineral substances of several kinds; and from thence I have been inform'd by others, that this *Earth-quake* reach'd a good many miles; but I have neither leasure, nor inclination to entertain you with uncertain reports of the Extent and other Circumstances, especially since a little further time an inquiry may enable me to give you a better warranted account.

Some Observations and Directions about the Barometer, communicated by the same Hand, to the Author of this Tract.

These shall be set down, as they came to hand in another Letter; *videl.*

As to the *Barometrical* Observations (as for brevities sake I use to call them) though you * guess'd aright, that, when I saw those of the Learned and Inquisitive Dr. *Beale*, I had not Mine by me, (for I left them, some years since, in the hands of a *Virtuoso*, nor have I now the leasure to look after those Papers;) yet since by the Communication, you have made publick, 'tis probable, that divers Ingenious men will be invited to attempt the like Observations, I shall (notwithstanding my present haste) mention to you some particulars, which perhaps will not appear unseasonable, that came into my mind upon the reading of what you have presented the Curious.

When I did, as you may remember, some years agoe, publickly exprefs and desire that some Inquisitive men would

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* See Num. 9. of the Phil. Transact. p. 159. the last paragraph.

make *Baroscopical* Observations in several parts of *England* (if not in forrain Countries * also ;)

* *Some whereof have been since invited by the Publisher, to give their concurrence herein.*

and to assist them, to do so, presented some of my Friends with the necessary Instruments : The declared reason of my desiring this Correspondence was (among other things) that by comparing Notes, *the Extent of the Atmospheric Changes, in point of Weight, might be the better estimated.* But not having hitherto received some account, that I hoped for, I shall now, without staying for them, intimate thus much to you : That it will be very convenient , that the Observers take notice not only of the *day* , but, as near as they can , of the *Houre* wherein the height of the *Mercurial Cylinder* is observ'd : For I have often found, that within less than the compass of one day, or perhaps half a day, the *Altitude* of it has so considerably vary'd, as to make it in many cases difficult, to conclude any thing certainly from Observations, that agree but in the day.

It will be requisite also, that the Observers give notice of the *Scituation of the place*, where their *Barometers* stand, not only, because it will assist men to Judge, whether the Instruments were duely perfected, but principally, because, that though the *Baroscope* be good (nay, because it is so) the Observations will much disagree, even when the *Atmosphere* is in the same state , as to Weight, if one of the Instruments stand in a considerably higher part of the Countrey, than the other.

To confirm *both* the foregoing admonitions, I must now inform you, that, having in these parts two Lodgings, the one at *Oxford*, which you know stands in a bottom by the *Thames* side, and the other at a place, four miles thence, seated upon a moderate *Hill*, I found, by comparing two *Baroscopes*, that I made, the one at *Oxford*, the other at *Stanton St. Johns*, that, though the former be very good, and have been noted for such, during some years, and the latter was very carefully fill'd ; yet by reason, that in the *Higher* place, the incumbent part of the *Atmosphere* must be lighter, than in the *Lower*, there is almost al-

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ways between 2 and 3 Eights of an Inch difference betwixt them: And having sometimes order'd my servants to take notice of the Disparity, and divers times carefully observ'd it my self, when I pass'd to and fro between *Oxford* and *Stanton*, I generally found, that the *Oxford Barometer* and the *other*, did, as it were by common consent, rise and fall together so, as that in the former the *Mercury* was usually $\frac{1}{8}$ higher, than in the latter.

Which Observations may teach us, that the Subterraneous steams, which ascend into the Air, or the other Causes of the varying Weight of the *Atmosphere*, do, many times, and at least in some places, uniformly enough affect the Air to a greater height, than, till I had made this tryall, I durst conclude.

But, as most of the *Barometricall* observations are subject to exception, so I found the formerly mentioned to be. For (to omit lesser variations) riding one Evening from *Oxford* to *Stanton*, and having, before I took horse, look't on the *Baroscope* in the former of these 2. places, I was somewhat surpris'd, to find at my coming to the latter, that in places no farther distant, and notwithstanding the shortness of the time (which was but an hour and a half, if so much) the *Barometer* at *Stanton* was short of its usual distance from the *other*; near a quarter of an *Inch*, though, the weather being fair and calm, there appear'd nothing of manifest change in the Air, to which I could adscribe so great a Variation; and though also, since that time, the *Mercury* in the two Instruments hath, for the most part, proceeded to rise and fall as before.

And these being the only Observations, I have yet met with, wherein *Baroscopes*, at some Distance of Place, and Difference of Height, have been compar'd (though I cannot now send you the Reflexions, I have elsewhere made upon them;) as the opportunity I had to make them my self, rendred them not unpleasant to me, so perhaps the Novelty will keep them from being unwelcome to you. And I confess, I have had some flying suspicions, that the odd *Phænomena* of the *Baroscope*, which have hitherto more pos'd, than instructed us, may in time, if a

competent number of Correspondents do diligently prosecute the Inquiries (especially with *Baroscopes*, accommodated with Mr. *Hook's* ingenious additions) make men some *Luciferous* discoveries, that possibly we do not yet dream off.

I know not, whether it will be worth while to add, that since I was oblig'd to leave *London*, I have been put upon so many lesser removes, that I have not been able to make *Baroscopical* Observations with such a constancy, as I have wished, but, as far as I remember, the *Quick-silver* has been for the most part, so high, as to invite me to take notice of it; and to desire you to do me the favour to inquire among your correspondents whether they have observ'd the same thing. * For, if they have,

* *This hath been inquired into, and is found, that several Accurate and Curious persons (as the Most Noble President of the Royal Society, the Lord Viscount Brouncker, Doctor Beale, Mr. Hook &c.) have observed the same.*

this lasting (though not interrupted) Altitude of the *Quick-silver*, happening, when the Seasons of the year have been extraordinary dry (so much as to become a grievance, and to dry up, as one of the late *Gazettes* informs us, some springs near *Waymouth*, that used to run constantly) it may be worth

inquiry, whether these obstinate Droughts, may not by cleaving of the ground too deep, and making it also in some places more porous and as it were, spungy, give a more copious Vent, than is usual, to subterranean steams, which ascending into the Air, increase the gravity of it. The inducements I have to propose this inquiry, I must not now stay to mention. But perhaps, if the Observation holds, it may prove not useless in reference to some Diseases.

Perhaps it will be needless to put you in mind of directing those *Virtuosi*, that may desire your Instructions about *Baroscopes*, to set down in their Diarys not only the day of the month, and the hour of the day, when the *Mercuries* height is taken, but (in a distinct *Columnne*) the weather, especially the Winds, both as to the Quarters, whence they blow (though that be not always so easy nor necessary,) and as to the Violence or Remissness, wherewith they blow. For, though it be more difficult, than

than one would think, to settle any general rule about the rising and falling of the *Quick-silver*; yet in these parts one of those, that seem to hold of itself, is,

* that when high winds blow, the *Mercury* is the lower; and yet that it self does sometimes fail: For, this very day (*March 3.*) though on that hill, where I am, the somewhat Westerly Winds have been blustering enough, yet ever since morning the *Quick-silver* has been rising, and is now risen near $\frac{3}{8}$ of an *Inch*.

* See Number 9. Phil. Transact. p. 157. 5. 8. & 9. where the word, Generally, signifies no more, than for the most part.

I had thoughts to add something about another kind of *Baroscope* (but inferiour to that in use) whereof I have given some intimation in one of the *Præliminaries* to the *History of Cold*. But you have already too much of a letter, and my occasions, &c.

So far that Letter. Since which time, another from the same Noble Observer intimates, That, as for that cause of the height of the *Quick-silver* in Droughts, which by him is suspected to be the elevation of steams from the *Crust* or Superficial parts of the Earth, which by little and little may add to the Weight of the *Atmosphere*, being not, as in other seasons, carried down from time to time by the falling Rain, it agrees not ill with what he has had since occasion to observe. For, whereas about *March 12th*, at *Oxford*, the *Quick-silver* was higher, than, for ought he knew, had been yet observ'd in *England*, viz. above $\frac{1}{2}$ above 30. *Inches*, upon the first considerable showers, that have interrupted our long Drought, as he affirms, he foretold divers hours before that the *Quick-silver* would be very low, (a blustering Wind concurring with the Rain) so he found it at *Stanton* to fall $\frac{1}{2}$ beneath 29. *Inches*. *

* Dr. Beale concurs with this Observation, when he saith, in a late Letter of *March 19.* to his Correspondent in London; By change of Weather and Wind, the *Mercury* is sunk more than an *Inch*, since I wrote to you on *Munday* last, *March 12.* This last night, by Rain and South wind, 'tis sunk half an *Inch*.

General